TEXTILE TECHNOLOGY DIGEST

VOLUME 11 FEBRUARY, 1954 NUMBER 2

ABSTRACTS

FIBERS A

Natural Fibers A 1

Acala cotton: brief history

L. E. Hessler (Texas Technological College). *Cotton Gin and Oil Mill Press 55:* 46,50 (March 27, 1954).

Luster of cotton: improvement. Part 7. Fiber properties and variety characteristics in relation to luster

L. Fourt, R. M. Howorth, M. B. Rutherford and P. Streicher (Harris Research Laboratories, Washington, D. C.). *Textile Research J. 24:* 279-291 (March, 1954).

The entire range of American cotton production was examined for correlation of luster with other fiber properties over two crop years. Luster was shown to be a varietal characteristic, although also influenced by environmental factors. The strongest correlations are of higher luster with greater length, greater strength, and greater roundness. American-Egyptian types, experimental triple hybrids, and Hopi Acala 50 are each different in the relation of fiber properties to luster. All the rest of the cottons, that is, the main Upland group, whether rain grown or irrigated, or long staple, show a uniform general trend of relationships. This trend of relations offers a guide to both spinners and breeders who may wish to select cotton for greater luster. The selections for luster which are possible within the main crop amount to as much gain in luster as can be obtained by plying. These results are mainly for natural or raw cotton, but the trends remain generally the same after mercerizing, with a tendency for the most lustrous cottons in the natural state to be the ones which gain most on mercerizing. 16 references. *(See also Col. 74)*

Hackling of hemp and similar fibers. Part 1

S. A. G. Caldwell. *Textile Recorder 71:* 100-102 (March, 1954).

The design and use of the vertical-type hackling machine is discussed.

Diffusion-controlled sorption of water by wool fibers

N. F. Roberts and A. R. Haly. *(Letter to the Editor). Textile Research J. 24:* 261-262 (March, 1954).

Disulfide bond reactivity in wool: formation of thiol radicals on exposure to light

G. H. Crawshaw and J. B. Speakman. *J. Soc. Dyers Colourists 70:* 81-82 (February, 1954).

On exposure to diffuse light, stringently deaerated solutions containing methacrylic acid and sulfuric acid undergo polymerization in a few hours at 25°C. in presence of ethyl disulfide, cystine, or intact wool, but not in their absence. The disulfides (including wool) are ineffective in the dark, and it is concluded that polymerization is initiated by the thiol radicals which are produced by homolytic fission of the disulfide bonds under the influence of light. 4 references.

The effect on wool of boiling in aqueous solutions. Part 1. Solutions at pH 1.5-9 with and without sodium sulfate

R. V. Peryman. *J. Soc. Dyers Colourists 70:* 83-92 (February, 1954).

Wool of 64s quality, in the form of yarn and cloth, was given boiling treatments of 3 hours with 50 minutes for raising to the boil to imitate prolonged commercial dyeing processes but without the addition of dye. The pH of the solutions has been controlled at selected pH values between 1.5 and 9 by the gradual addition of sulfuric acid or sodium carbonate during the boiling. The wool has subsequently been examined for modification. Results and practical implications are discussed. 42 references.

The frictional properties of the wool fiber

B. Lincoln. *J. Textile Inst. 45:* T92-T107 (February, 1954).

The directional frictional effect of the wool fiber is discussed in terms of the geometry of an ideal scale profile, assuming that the real areas of contact are formed by elastic deformation of the scale material. The predicted variation of frictional force with load, regain, fiber diameter, scale distribution, and roughness of the rubbing surface is examined and found to agree well with published experimental data. A new explanation is suggested for the absence of D. F. E. in dry chlorinated fibers. 26 references.

The purification of wool

J. P. E. Human and J. B. Speakman. *(Letter to the Editor). J. Textile Inst. 45:* T162-T165 (February, 1954).

Extraction of a sample of raw merino wool for 1089 hours in a specially devised apparatus (illustrated) shows that wool purified in the conventional manner by extraction for a few hours each with ether and alcohol must contain appreciable quantities of ether- and alcohol-soluble matter. The effect of residual wax on the elastic properties of fibers was investigated. 2 references.

The structure and chemo-physical behavior of the fibers of hares and wild and tame rabbits

H. G. Frohlich. *Z. ges. Textil-Ind. 56:* 32-38 (January 5, 1954); *in German.*

By means of photomicrographs of cross and longitudinal sections and graphs and tables the histological structure of the fibers of hares and wild and tame rabbits is explained. The differences in their chemo-physical behavior are investigated with regard to milling and felting suitability. This information is important for the dye and hat industry. 12 references.

Man-Made Fibers A 2

Development in man-made fibre production and processing technology: 1953. Part 2. Fibre manufacture

Brit. Rayon & Silk J. 30: 49-52 (February, 1954).

A review with 52 references.

The microstructure of chemical fibers

E. Elod. *Textil-Rundschau 9:* 13-19 (January, 1954); *in German.*

By means of X-ray it was possible to investigate more deeply the composition and the qualities of many chemical fibers, especially those which consist of hydrate celluloses (viscose and cuprammonium fibers). Applying Elod's so-called "peeling method" the cellulose hydrate fibers can be peeled off systematically from the surface to the inside in order to study the density, the swelling, and the qualities of firmness and creasing of the heart of the fiber. These studies, which are illustrated by photomicrographs and experimental data, give valuable information on the behavior of cellulose hydrate fibers in the process of soaking, dyeing, setting and imbedding of resin for improved crease resistance. This study also investigates fiber fineness and elasticity. 8 references.

Newer man-made fibers as appraised by retailers and consumers

E. Freedman. *Papers Am. Assoc. Text. Technol. 9:* 55-65 (March, 1954).

Data are presented showing areas needing improvement. Customer complaints are analyze

Sub-microscopic structure of viscose rayons

P. Kassenbeck. *Bull. Inst. Textile France N 43:* 43-52 (December, 1953); *in French.*

With new techniques for preparing textile fibers for examination of their sub-microscopic structure under the electron microscope, it possible to: (1) follow the kinetics of penetration of a solvent into the fiber (lustring method) and (2) study the surface and internal structure of the fiber on the same photograph (broken fiber method). The results obtained with the two methods are applied to the study of the differentiation between the skin and core of viscose rayons. 12 references.

Chemical fibres from proteins

R. L. Wormell. *Melliand Textilber. 35:* 12 129 (February, 1954); *in German.*

A process for hardening, stretching, and hardening has been developed from the experimental laboratory stage to that of commercial production. It is based on the Lanital process of the Snia Viscosa. Lanital fibers are spun an acid salt bath, the method being very similar to the viscose process. When the fibers have emerged from the spinneret, and before they pass the first cylinder, they are stretched. Directly after spinning, protein fibers possess considerable plasticity; in the wet state, they can be stretched particularly easily. The filaments behave as though they consisted of a highly viscous liquid and elongation of several hundred percent can be achieved.

Mylar polyester film: general properties

D. D. Lanning. *Papers Am. Assoc. Text. Technol. 9:* 76-79 (March, 1954).

Mylar polyester film: textile applications

J. R. Mitchell. *Papers Am. Assoc. Text. Technol. 9:* 80-84 (March, 1954).

Terylene polyester fiber

B. P. Ridge (Imperial Chemical Industries Ltd.). *Can. Textile J. 70:* 57-59 (November 6, 1953); 58-61 (November 20, 1953); 67 (December 4, 1953); 68,71 (December 18, 1953).

This series of four articles deals with the origin and history, properties and processing, dyeing and printing, and end uses of Terylene.

Glass fiber textiles: symposium

J. K. Park. *Papers Am. Assoc. Textile Technol. 9:* 85-96 (March, 1954).

The chemical structure of glass fibers and its effect on properties, by Alfred Marzocchi, p. 88-9; *The dyeing, finishing and printing of glass decorative fabrics,* by R. F. Caroselli, p. 90-91; *Vinyl coated fiberglas yarn—a new basic textile,* by R. C. Horton, p. 92-93.

General A 3

Fibre science

J. M. Preston. Manchester, England: Textile Institute, 1953. 421 pages. 2nd edition. Through *Brit. Cotton Ind. Research Assoc. 34:* 105 (February 15, 1954).

The first edition of this book (1947) consisted of eighteen lectures delivered at the College of Technology, Manchester. The new edition has been revised and brought up to date. The constitution and structure of the principal textile fibers, and the nature of the changes they undergo in processing, are described in detail.

Structure of textile fibres

A. R. Urquhart and F. O. Howitt. Manchester, England: Textile Institute, 1953. 165 pages. Through *Brit. Cotton Ind. Research Assoc. 34:* 105 (February 15, 1954).

This book is the outcome of an attempt to provide a simple account of the structure of textile fibers for the benefit of those without specialized scientific training. It consists of a series of articles originally published in the *Proceedings* section of the *Journal of the Textile Institute* in 1949-1950, and now revised and brought up to date.

Abrasion damage of textile fibers

G. Susich (Quartermaster Research and Development Laboratories, Phila., Pa.). *Textile Research J. 24:* 210-228 (March, 1954).

The inherent abrasion behavior of 14 different textile materials in the form of yarns was investigated. Abrasion was expressed by the abrasion damage, which is the opposite of abrasion resistance. Abrasion damage was measured quantitatively by the fiber fineness (grex) destroyed in flexing around a steel bar under standardized conditions using the Stoll-Quartermaster abrasion tester. The abrasion damages were evaluated relative to that of high-tenacity nylon multifilaments. Great differences exist in the abrasion behavior of various textile fibers. The damage of multifilaments increases from nylon to Dacron polyester fiber, viscose, Fortisan, Orlon acrylic fiber, Saran, silk, acetate, and casein, while that of staple yarns increases from nylon to Dacron polyester fiber, cotton, Fibravyl, Dynel, Kuralon, Thermovyl, wool, Orlon acrylic fiber, viscose, and acetate. Staple yarns were always more abraded than corresponding multifilaments. Although high elastic energy of fibers is the main factor preventing inherent abrasion damage, extensibility, yarn surface, and friction must also be taken into account in interpreting the abrasion behavior of various textile fibers. This article has also been published as Textile Series Report No. 85 by the Office of the Quartermaster General, and is available through the Office of Technical Services, Washington 25, D. C. 18 references.

Electroosmosis and streaming in natural and synthetic fibers

G. J. Biefer and S. G. Mason. *J. Colloid Sci. 9:* 20-35 (February, 1954).

A comparison was made of the electrokinetic effects of streaming and electroosmosis over a wide range of fiber concentrations for swelling (cellulose), slightly swelling (cellulose acetate) and nonswelling (glass) fibers. 17 references.

Mechanical conditioning of textile fibers

George Susich. U. S. Office of the Quartermaster General, Research and Development Division, 1953. 55p. Textile series report no. 82. Available from Office of Technical Services, Washington 25, D. C., $1.50. PB 111 191.

Mechanical conditioning denotes the alterations which remain temporarily or permanently in textile fibers after they have been deformed. These alterations are the result of changes in the structure of textile fibers. Cotton, Fortisan, ethocel, acetate, silk, viscose, Dacron polyester fiber, Orlon acrylic fiber, Vicara, Vinyon NORU, casein, Nylon Type 300, Saran, human hair and wool were tested either as single fibers, as multifilaments, or as staple yarns. Mechanical conditioning was mostly performed by repeated extensions (cycling) to 80% of the extensibility. In connection with mechanical conditioning, the following topics were investigated: (1) alterations occurring spontaneously or produced by heat and swelling after mechanical conditioning of cellulose acetate; (2) structural changes of cellulose fibers due to stretching (stress hardening and fatigue); (3) cold drawing of a Dacron monofilament; and (4) behavior of a cotton thread after repeated extensions to different strain levels. 39 references.

X-ray small angle scattering of ramie and rayons

D. Heikens, P. H. Hermans, P. F. Van Velden and A. Weidinger. *J. Polymer Sci. 11:* 433-

446 (November, 1953).

The small angle scattering of ramie and 25 highly oriented rayon samples of widely different prehistory has been examined in both the air-dry and the water-swollen condition with monochromatic radiation in a vacuum camera. All intensity curves are given. For some rayons the curves show distinct maxima or inflection points in either the swollen or the dry condition which seem to be indicative of the existence of a maximum of relatively low intensity superimposed on a normally descending small angle intensity curve. Other specimens either do not show these superimposed maxima or show only faint indications of their occurrence. The existence of maxima seems to demonstrate that in some rayons a part of the fiber substance has a micellar structure of unexpectedly high regularity and with average interparticle distance. No clear correlation between small angle scattering features and other known properties of the rayons has been detected. 8 references.

YARNS B

Opening and Picking B 1

Cotton spinning. Volume 1. [Die Baumwollspinnerei]

A. P. Rakow, W. M. Krfukow, and P. D. Balfasow. Leipzig: Fachbuchverlag, 1953. 312 pages. In German (Translated from the original Russian edition of 1949). Through *Brit. Cotton Ind. Research Assoc. 34:* 16 (January 15, 1954).

The first part of this textbook on the technology of cotton spinning is in three sections dealing with opening and cleaning, carding, and combing. Details of Russian machinery are included; there are 160 illustrations.

Air filter

Saco-Lowell Bull. 26: 17-19 (February, 1954).

The number 6 Saco-Lowell Duplex air filter is claimed to be readily adaptable to almost any picker with one or two beaters, without the picker itself undergoing any structural changes. Diagrams of application to Model C-4 and F-4 pickers are presented.

New arrangement of steel centre ball for Crighton or vertical opener

R. H. Lakhe (N. P. Mills, Dhulia, India). *Indian Textile J. 64:* 180, 177 (December, 1953).

Saco-Lowell number 15 opener

Saco-Lowell Bull. 26: 20-26 (February, 1954).

Saco-Lowell's number 15 opener is described. Testing data, diagrams, and photographs are included.

Single-process opening and beating device for cleaning cotton

Centre Ecole des Agents de Maitrise du Textile de l'Est. *Industrie Textile:* 637-644 (September, 1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 82 (February 15, 1954).

Various arrangements of this device are described and illustrated by photographs and flow sheets.

Carding and Combing B 2

Metallic card clothing in 3 and 4 roll spinning

K. Buschmann. *Faserforsch. u. Textiltech. 12:* 511-518 (December, 1953); *in German.*

The possibilities of applying metallic card clothing in 3 and 4 roll spinning are investigated from a practical and theoretical standpoint. Stress is laid upon the following topics; periodical stripping, loss in production, and uniformity of sliver. It is shown that the use of metallic clothing for the manufacture of rayon is no longer problematical, it is even of advantage compared to the regular clothing. Its application for carding cotton is possible on a large scale. Only yarns submitted to the combing process showed a higher percent in combing waste (noils). Numerous photographs, diagrams, graphs and tables are presented. 21 references.

Drawing and Roving B 3

Gear-changing devices for drawing rollers in three-roller cotton spinning mills

Friedrich Ziebach. *Z. ges. Textil-Ind. 55, No. 23:* 1417-1420 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 83 (February 15, 1954).

An attempt is made to investigate, on a purely mathematical basis, the causes of irregularities in yarn thickness, considered to be due to the use of a condenser serving as intermediate roving guide on ring-spinning frames.

Saco-Lowell duo-Roth drafting

Saco-Lowell Bull. 26: 1-9 (February, 1954).

Models SDR-1, SDR-2, and SDR-3 are described and claimed to combine the important advantages of the single belt and double belt systems. Illustrations and diagrams are included.

What is new in drafting and spinning?

Modern Textiles Mag. 35: 32-34, 54-56 (March, 1954).

A preview of new equipment by Saco-Lowell Shops, Whitin Machine Works, Foster Machine Company and Warner and Swasey to be seen at the Atlantic City Exhibition.

Spinning, Winding, Twisting B 4

Bobbin lifter

Saco-Lowell Bull. 26: 38-39 (February, 1954).

The Saco-Lowell bobbin lifter is claimed to be a simple and effective device for starting bobbins from spindles.

Defects in spinning staple-fibre yarns

F. Ziebach. *Z. ges. Textil-Ind. 56, No. 1:* 48-51 (January 5, 1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 134 (February 27, 1954).

A case of faulty roller adjustment in a three-roller spinning frame is reported, which resulted in lengthening of the individual fibers so that the sizing and delustring agents scaled off and deposited as fine white dust on other machines. The yarn showed, correspondingly, a higher luster and extension and, owing to the loss of weight, greater deviations in count than that from other spinning frames. The necessity of careful control of the working conditions during spinning of staple fiber is pointed out.

The MAK S. A. mule, type 641, rope and stringless

W. Forster. *Z. ges. Textil-Ind. 56:* 225-232 (March 5, 1954); *in German.*

A technical description of the new S.A. mule made by MAK of Kiel, Germany. This machine was exhibited for the first time last year at the Hannover technical fair.

Torsion phenomena of the yarn balloon on cap spinning frames

F. Oertel. *Melliand Textilber. 35:* 136-141 (February, 1954); *in German.*

On a large-size cap spinning frame with extra-high values for the bobbin diameter, balloon length, and revolutions per minute of the spindle, the torsion of the yarn balloon under the influence of air resistance was made visible by illuminating with a flashlight stroboscope with a very short flash, and the spatial torsion curve was photographed from two different directions, forming with each other an angle of 60°. From the individual photographs, the torsion curves and the torsion angle between the edge of the cap and the yarn eyelet were determined graphically, and then expressed in the form of a formula. The significance of these phenomena in various applications is discussed.

Yarn winding: theory and practice. Part 1

H. Marsden. *Textile Wkly. 53:* 598-604 (February 26, 1954).

Cleaning, tensions, speeds, and end breaks are discussed.

Yarn winding: theory and practice. Part 2

H. Marsden. *Textile Wkly. 53:* 654-658 (March 5, 1954).

Warp yarns, automatic winding, weft yarn winding, and the Unifil loom winder are discussed.

General B 5

Better blends through volumetric analysis

Philip E. Sperling and Gilbert H. Steinberg. *Modern Textiles Mag. 35:* 64-68,78,88 (March, 1954).

In using volumetric analysis the prime consideration in choosing yarns and fibers for the blended structure is the amount of space the components occupy, rather than their weight. Fiber and yarn equivalents were found by matching six different synthetic fibers with wool on the basis of diameter. Graphs, figures, and tables are presented. This study was made for a B. S. thesis at Massachusetts Institute of Technology.

Blending in a worsted yarn mill

B. Kagi. *Z. ges. Textil-Ind. 56:* 92-94 (January 20, 1954); *in German.*

The preparation of a blend or a wool "bed" is discussed, giving the prescribed percentage positions of the different raw materials as well as their volume and stratification. The thickness of the layer must correspond with the percentage of the spinning lot already in the wool "bed" and it must be suitable in color to the dyeing blend of the final product.

Some statistical aspects of mixing and blending

D. R. Cox. *J. Textile Inst. 45:* T113-T122 (February, 1954).

A theoretical approach to the study of irregularities in slivers and yarns arising from the uneven mixing of fibers of different types. The paper is mainly concerned with mixing by doubling in the drawing operation. Statistical details for those who are interested are given in separate sections. 3 references.

Effect of single and ply twists on the properties of a 31/2 carded cotton yarn

L. A. Fiori, J. J. Brown and J. E. Sands (Southern Regional Research Laboratory). *Textile*

Research J. 24: 267-272 (March, 1954).

The effect of single and ply twists on the properties of 31/2 cotton carded yarn was studied. A widely grown cotton variety (Deltapine) of average fiber properties was spun into a 31/1 yarn (Z twist) using a range of twist multipliers (2.9-6.9). Each single yarn twist multiplier construction was then 2-ply twisted (S twist) with a range of twist multipliers (1.9-7.9). Maximum ply strength was obtained when low-twist single yarns were 2-ply twisted with a high twist multiplier. Maximum elongation at break was obtained with a similar single-ply twist construction. For certain twist constructions single and ply twist may be varied within reasonable limits without materially decreasing strength. When the same twist multiplier was used in the single and ply yarn, maximum ply yarn strength was realized with that twist multiplier which resulted in maximum single yarn strength. Elongation is related linearly and directly to equivalent twist multiplier constructions. The ratio of ply to single yarn strength, based on maximum ply yarn strength, was highest when single yarn strength was lowest (low twist), decreased rapidly as the single yarn strength approached maximum, became approximately constant in twist combinations resulting in single yarns of maximum strength, and increased slightly as single yarn strength decreased (very high twist). 5 references.

Effect of twist on the properties of synthetic filament yarns

J. L. Taylor, C. Y. Widerquist, M. M. Christie, and V. R. Thompson. Atlanta, Georgia, Georgia Institute of Technology, State Engineering Experiment Station, January, 1951. 138p. Available from: Office of Technical Services, Washington 25, D. C. $2.00. PB 111 241.

Yarns studied included several sizes of viscose rayon, nylon, Dacron, and Orlon. Twist was added until the breaking strength of the yarns had decreased approximately 40 per cent from the original values, or until shearing or creping of the yarn occurred. The effect of twist on the following properties was determined: denier, diameter, dry breaking strength, elongation, elastic recovery, energy absorption, tenacity. As would be expected from fundamental considerations, the over-all effect of twist was found to be greater on high denier and high tenacity yarns. Detailed data are given, in tabular and graphical form, for the effect of twist on the properties of individual yarns.

The relation between the orientation of filaments in a rayon tow and some characteristics of tops made from tow

G. Waggett. *J. Textile Inst. 45:* T81-T91 (February, 1954).

This paper shows the effects of filament di orientation in tows on the distribution of fibe lengths, in the case of a tow-to-top by cuttin method, and on the periodic variation in weigh per unit length of top in a tow-to-top by stretch breaking method. Conversely, it becomes possibl to measure the mean effective degree of filamen disorientation in large tows by relating the di tribution of fiber lengths to the dimensions o the cutter. 7 references.

Uniformity of combed wool yarns

G. Mazingue, M. Van Overbeke and H. Dillie *Bull. Inst. Textile France No. 43:* 65-80 (De cember, 1953); *in French.*

The object of this study was to show tha while the evenness of the weight per unit lengt is the criterion for spinning, it is the evenness o appearance (change in diameter or silhouette that is most important for weaving. 5 reference

Use of mineral oil in the spinning industr

Koichi Tanaka and Hiroshi Tsujioka (Nagoy Inst. Technol.). *Bull. Nagoya Inst. Techno 3:* 190-192 (1951). Through *Chem. Ab stracts 48:* 3034 (March 10, 1954).

Potential use of surface-active agent from pe troleum in the spinning industry was discussed.

Orlon sewing threads

Homer H. Bland. *Can. Textile J. 71:* 67-7 (March 12, 1954).

FABRICS

Warping, Slashing, Yarn Preparation C

Backsizing carpets and rugs

O. B. Hager (Alco Oil and Chemical Corp.). *Am. Dyestuff Reptr. 43:* P172-P173,P17 (March 15, 1954).

The backsizing of carpets is necessary (1) to bind the yarns, especially the pile yarns, of the carpet to the general structure, (2) to impar stiffness, (3) to inctrease weight, (4) to dres down fuzziness, and (5) to increase durability. The author explains how sizes are applied, what materials go into their composition, and how these components are blended to get differen effects. Since synthetic resins and rubbery sub stances are now available for carpet sizes, the properties and uses of such materials are also discussed.

Mechanical selection for drawing-in warps

A. Vadon. *Industrie Textile:* 651-653 (September, 1953); in French. Through *Bri Cotton Ind. Research Assoc. 34:* 87 (Febru-

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A drawing-in machine is described and illustrated by diagrams.

Rayon warp sizing. Part 2

Skinner's Silk and Rayon Record 28: 258-261 (March, 1954).

A general review including information on type and percentage of size, sizing spun acetate rayon, package sizing, and soaking crepe yarns. 6 references.

Remarks on the sizing of cotton

J. Constant. *Rev. Textile 50, No. 4:* 3; *No. 5:* 7-17 (1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 87 (February 15, 1954).

An empirical formula is given which shows that the quantity of sizing agent per Kg of cotton yarn, under otherwise identical conditions (origin of cotton and spinning method), is proportional to the square root of the metrical (international) count of the yarn. Quantitative and qualitative methods for checking the raw materials, operating conditions and results are discussed, and a control system (sizing tickets) is pointed out which would permit the determination of percentage elongation, percentage sizing agent used, percentage water evaporated, average rate, etc.

QP Shirley metering pump

Ormerod Engineers Ltd. *Machinery 83:* 1229 (December 18, 1953); Through *Brit. Cotton Ind. Research Assoc. 34:* 87 (February 15, 1954).

Production of the above pump for viscous liquids, such as size, is reported.

Sorption of carboxymethylcellulose (C.M.C.) on synthetic and rayon staple yarns

Fujio Kitazawa (Nagoya Inst. Technol.). *Bull. Nagoya Inst. Technol. (Anniversary Issue) 4:* 155-158 (1952). Through *Chem. Abstracts 48:* 3034 (March 10, 1954).

Sorption of C.M.C. as the sizing agent to the synthetic fiber (Vinylon) and the rayon staple yarns was investigated. Recommended concentrations of C.M.C. for both fibers were 0.5% and 0.25%, respectively. Addition of surface-active agent increased the sorption by 50-120%.

Systematic study of sizing. Part 3

R. Shutz and S. Marguier. *Bull. Inst. Textile France No. 43:* 81-97 (December, 1953); *in French.*

The method described permits more accurate testing of the sizing power and elasticity of sizes for yarn slashing. The calculation of sizing power, as made in this study, gives a valid figure provided that there are enough tests. This method has been illustrated by a short systematic study. The main results are as follows: (1) For the same amount of size, a pure starch size gives stronger but less flexible roving than does a commercial peptonized starch size. (2) Under the same conditions, dextrinized starch leaves more deposits than pure starch. (3) For the same quantity of size deposits, dextrinized starch size, after all surplus has been thoroughly pressed out, makes the roving stronger while, with a non-dextrinized starch, there is practically no difference. (4) After vigorous pressing out, greater flexibility is obtained, both with pure starch, and with dextrinized starch. 9 references.

Warping and sizing of colored rayon warps

Albert Schulze. *Melliand Textilber. 35:* 141-143 (February, 1954); *in German.*

The author reports on his practical experience in the preparation of warps consisting of rayon yarns dyed in the form of hanks or packages. For the warping operation, he recommends the use of cone or high-production warping machines, and deals in particular with the yarn tension regulators. Detailed consideration is also given to the sizing process and the question of the most suitable sizing agents to be used.

Weaving C 2

Checking the shuttle in powerloom weaving. Part 1

H. Barlow. *Textile Recorder 71:* 97-99 (March, 1954).

A detailed survey of shuttle checking mechanisms and of the relevant factors to be taken into consideration.

Experience with automatic looms for rayon

E. O. Hesse. *Z. ges. Textil-Ind. 55, No. 24:* 1485-1489 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 88 (February 15, 1954).

The development, and the advantages and disadvantages of automatic looms for use in silk and rayon weaving are reviewed.

Heavy looms for flannel and industrial fabrics

H. F. Steinert. *Z. ges. Textil-Ind. 56:* 51-52 (January 5, 1954).

A heavy loom is described with a width of up to 16 meters (17.4 yards) for the weaving of

light, medium and heavy materials as well as continuous conveyor belts and cotton driving belts.

Improved weft protector

Reinhold Pohlig KG, Solingen, Germany. *Z. ges. Textil-Ind. 56:* (January 5, 1954); *in German.*

A new patented weft protector with extended prongs, which are bent up and back. This prevents the filling from tying around the prongs. By moving the center of gravity this protector became more sensitive, allowing the filling to be under less tension when leaving the shuttle.

Methods of weaving with several weft threads

L. Sommier. *Industrie Textile:* 657-658 (September, 1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 88 (February 15, 1954).

Two devices are described and illustrated by diagrams, and three different techniques are outlined.

Unwinding of the warp in weaving

J. P. Simon. *Industrie Textile:* 661-663 (September, 1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 87 (February 15, 1954).

The device described is based on the use of a feeler roller which is fixed, in form of a mobile back rail, to the loom. The unwinding of the warp is effected at a constant tension by adjustable warp beam brakes. Diagrams are given.

Weaving and kindred processes. Part 2

A. T. C. Robinson. *Skinner's Silk and Rayon Record 28:* 309-311 (March, 1954).

The author deals with the design of tappets for various weaves and considers the effects of shed timing. Diagrams and references.

Knitting C 3

Alignment charts

Joseph Rab. *Knitter 18:* 44-47 (March, 1954).

Illustrations are given showing the use of alignment charts in the knitting industry for calculating and coordinating variable figures. Some directions for their construction are also included.

Eyelet knitting

J. B. Lancashire. *Textile Recorder 71:* 93-96 (March, 1954).

Machines and methods for various types of eyelet knitting are described and illustrated.

F. N. F. machine

F. N. F. Ltd. *Textile Merc. 130:* 472-474 (March 12, 1954).

A description and diagrams are given of the F.N.F. new P.C. model warp knitting machine. A chain link patterning mechanism and improved let-off system, a wider choice of needle gauges and other adaptations have been added to the old V. E. model.

Fitting quality of F.-F. hosiery. Part 3

Joseph C. Cobert. *Knitter 18:* 42-44 (March, 1954).

Length and foot size control are discussed.

Warp knitting loom

Liba Maschinenfabrik G.M.B.H., Naila, Germany. *Textile Merc. 130:* 419,432 (March 5, 1954).

Some unusual design features of the new German Liba/Saupe Rapid, Type LSZ 36, warp knitting loom are described.

General C 4

Braiding technology. Part 1. Introduction and Maypole braider

D. Brunnschweiler. *Skinner's Silk and Rayon Record 28:* 254-257 (March, 1954).

Factors affecting the tear- and water-resistance of lightweight clothing and tentage fabrics

W. E. O'Brien and L. I. Weiner (Quartermaster Research and Development Laboratories, Phila., Pa.). *Textile Research J. 24:* 241-250 (March, 1954).

This paper has previously been published as Textile Series Report No. 81 by the Office of the Quartermaster General and is available through the Office of Technical Services, Washington 25, D. C. See abstract in *Textile Technology Digest 10:* 1540 (December, 1953).

Textile scaffolding threads. Part 26. Functions of the removable carrier thread

A. Johnson. *Skinner's Silk and Rayon Record 28:* 314-315 (March, 1954).

Fabrics witth open-work stripes.

Warp and weft stripes in plain and figured fabrics

Helmut Hock. *Melliand Textilber. 35:* 145-147 (February, 1954); *in German.*

The author describes possible causes of warp and weft stripes, beginning with the spinning operation and ending with the finished fabric. Each stage of processing is discussed so that not only the causes of the faults, but also practical methods of avoiding or repairing them may be seen.

Fancy suiting styles

Wool Record 85: 566-568 (March 11, 1954).

Use of the line stripe in styling twill cloths.

The manufacture of trimming cloths

Willi Kresse. *Melliand Textilber. 35:* 144-145 (February, 1954); *in German.*

The complete process of manufacturing trimming cloths is described, and practical formulations are given for each treatment.

Novelty coating tweeds

Wool Record 85: 446-447 (February 25, 1954).

Variation by special yarn structures and colors.

Textile design. Part 3. Shaded designs

Textile Recorder 71: 87-88 (March, 1954).

Examples are given of weave formations for producing shaded or graded effects.

Worsted costume cloths

Wool Record 85: 500,509 (March 4, 1954).

Use of mule-spun yarns.

FINISHES D

Wet Processes D 1

Application of melamine resin to Vinylon fiber

Isao Imazu (Kanebuchi Spinning Co., Yodogawa). *Resin Finishing and Appl. (Japan) No. 4:* 8-11 (1952). Through *Chem. Abstracts 48:* 1694 (February 10, 1954).

Kanebiyan fiber (polyvinyl alcohol synthetic fiber) was treated with a 6% aqueous solution of Resroom HP. When the treated fiber was steeped in 0.1N HCl for 20, 60, and 120 hours, the devitrificated HCHO was 0.20-0.10, 0.41-0.20, and 0.75-0.41%, respectively. The treated fiber was boiled for 5, 15, and 30 hours, and the contracted volume of fiber was 0.90, 1.90, and 4.90%, respectively.

Application of N-(hydroxymethylene) adipamide to wool fabrics

Koichi Tanaka, Kenji Tanaka, Fujio Kitazawa, and Hiroshi Tsujioka (Nagoya Inst. Technol.). *Bull. Nagoya Inst. Technol. (Anniversary Issue) 4:* 181-184 (1952). Through *Chem. Abstracts 48:* 3034 (March 10, 1954).

N-(hydroxymethylene) adipamide prepared from waste nylon was applied to wool fabrics as 4-6% alcohol solution to promote antishrinkage property, tensile strength, and frictional resistance.

Color and colorfastness of vat dyed cottons: influence of preparation and method of dyeing and finishing

Frank J. Risso and Lester H. Bailey. Office of the Quartermaster General, Research and Development Division, 1953. 80 p. *Textile series report no. 69.* Available from the Office of Technical Services, Washington 25, D. C. $2.25. PB 111 219.

Data are shown on the color and colorfastness of 9-ounce sateen, prepared for dyeing by 14 prepare routings differing mainly in boil-off and degree of mercerization, and dyed O.D. 7 by four commonly used dye methods (pad jig, pad steam, Williams, and continuous booster). Some of the fabrics were treated with three different commercial water-repellent compounds. The fabrics were evaluated for initial reflectance and for colorfastness after mobile launderings, scrub tests, and outdoor exposures. The long accepted concepts that boil-off and mercerization lead to good colorfastness were, in general, corroborated by the results. The best dye method to be used depends largely on the way a fabric is prepared, but from a consideration of the average results for all the prepares, the pad-jig method appears to give the highest order of fastness. The theoretical aspects of the effects of preparation and dyeing procedures on color and colorfastness are discussed, emphasizing that the best combinations of prepare and dye method from the colorfastness standpoint are those which provide the highest dye-to-fiber bonding strength, and do not produce an overly rapid "strike" of the color and consequent oversaturation of fiber surface. The effect of the water-repellent compounds is to protect the color of the fabric during wet mechanical operations. 26 references.

Delustered fabrics

Z. ges. Textil-Ind. 56: 52-54 (January 5, 1954); *in German.*

The latest techniques, processes and chemicals for delustering rayon materials and knitted fabrics are discussed.

Determination of the threshold of mercerization of various cotton samples by means of X-ray diagrams. Comparison with ramie and wood pulp

Therese Petitpas. *Mémor. Serv. Chim. Etat 37, No. 3:* 271-273 (1952); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 96 (February 15, 1954).

Threshold of mercerization (minimum concentration of sodium hydroxide necessary to obtain completely mercerized fibers) has been studied by means of X-ray diagrams, and it was found that this minimum depends to a large extent

upon the nature of the fibers and the preceding treatment to which they had been subjected (e.g. bleaching).

Historical notes on the wet-processing industry. Part 3. The contributions of Thomas Cooper

S. M. Edelstein. *Am. Dyestuff Reptr. 43:* 181-182 (March 15, 1954).

How to trap lost profits in mercerizing. Part 2

D. V. Guillemette (Mount Hope Machinery Co.). *Textile Age 18:* 26-28 (March, 1954).

Modifications of wool by various chlorination processes and their effect on the wear life of shrink-resistant materials

Daniel Frishman and Milton Harris (Harris Research Laboratories). *Am. Dyestuff Reptr. 43:* P174-P177 (March 15, 1954).

Shrink-resistant wool is most widely produced today by many variations of the so-called "chlorination" processes. There is a general tendency to consider all such processes and their effects on the overall properties of wool as being very similar, whereas, in practice, they differ widely in the degree of shrink resistance obtained and in the extent to which they modify other desirable properties of the fiber. The present discussion considers the fundamental basis for these differences and demonstrates the bearing of such differences on the useful life of treated materials as determined through actual wear tests. Data are also presented which confirm the utility of the alkali-solubility test as a measure of the changes produced in wool by oxidative treatments. 21 references.

The modulus of elasticity and the resistance properties of hair felt

Federico Gamba. *Melliand Textilber. 35:* 158-160 (February, 1954); *in German.*

The author offers an explanation based on the theory of elasticity, of the empirically developed processes for the milling or felting of hair felts, and refers in this connection to the theory of felting set up by Dr. G. Berg. This is followed by suggestions for the milling process. The author points out the law to which the milling machine must conform for optimum interweaving of the fibers.

Ultraviolet screening properties of certain pigment vehicle combinations

L. L. Heffner (Wm. E. Hooper and Sons Co., Baltimore, Md.). *Textile Research J. 24:* 272-278 (March, 1954).

A review of some properties of an additive finish (consisting of chlorinated paraffin, antimony oxide, calcium carbonate, inorganic pigments, and fungicides) used extensively for the production of fire, water, weather, and mildew resistant cotton duck. The property chosen for special emphasis is that of the sunlight or ultraviolet resistance imparted to cotton duck by such a finish. 13 references.

Dyeing and Printing D 2

The afterchrome process

J. F. Gaunt. *J. Soc. Dyers Colourists 70:* 46-57 (February, 1954).

The following aspects of the afterchrome process are examined: (1) the dyeing of afterchrome dyes prior to chroming, (2) the effect of dichromates on wool during afterchroming, and (3) the effect of dichromates on chrome dyes during afterchroming. 30 references.

Azoic and other fast dyeings on knitted cotton fabric

E. R. Wiltshire. *J. Soc. Dyers Colourists 70:* 41-46 (February, 1954).

Methods of dyeing the azoic dyes on knitted cotton fabrics on the winch are described. The application of the coupling component is straightforward, but the development can cause difficulty. Relatively few developers can be processed satisfactorily on the winch, and as a general method pad development is recommended. For this purpose the fabric should preferably be dried after application of the coupling component. The final aftertreatment of azoic dyeings is done very efficiently on the winch. Pale shades can be dyed with vat dyes on the winch if adequate quantities of Dispersol VL are employed. The technique described is simple and has advantages over the use of solubilized vat dyes, particularly for blues.

Colorfastness of drapery and upholstery fabrics: colorfastness to light

Margaret M. Cooper (University of Wisconsin). *J. Home Econ. 46:* 155-160 (March, 1954).

A study was made of 222 drapery and upholstery fabrics. Comparisons were made to show the relationship of colorfastness to light and other properties such as fiber content, type of dye, and probable use. The authors conclude that there is need for more careful selection of dyes for upholstery and drapery fabrics to achieve satisfactory color fastness to light. Price of fabrics was found to be no criterion of satisfactory performance. 12 references.

Direct dyeing of cellulose fibers

M. Tvede. *Tidsskr. Textiltek. 12:* 21-36 (February, 1954).

Graphical representations are given of the dependence of the ratio of exhaustion on the nature of the cellulose fabric and of the dyestuff, and on dyeing conditions such as temperature, duration of dyeing process, addition of electrolytes, acidity, and levelling agents. This is followed by a description of the significance of the rate of exhaustion, the migration of the dyes, the influence of the liquor ratio, the saturation values for various cellulose fabrics, dyestuff interference, and the classification of direct dyes. Improvement of the different types of color fastness is discussed.

The dyeing of acetate rayon with disperse dyes. Part 1. Aqueous solubility and the influence of dispersing agents. Part 2. The relation between aqueous solubility and dyeing properties

C. L. Bird. *J. Soc. Dyers Colourists 70:* 68-77 (February, 1954).

Aqueous solubilities have been determined at 25° and 80°C. for a range of purified disperse dyes. The solubilizing effect of a number of dispersing agents has been examined. It is shown that aqueous solubility has some bearing on the rate of dyeing of disperse dyes and largely governs their levelling power. Addition of a dispersing agent to an acetate rayon dyebath reduces the percentage exhaustion to an extent which is proportional to the degree of solubilization. 12 references.

Dyeing of synthetic fibre blends

L. S. Thompson. *Can. Textile J. 71:* 53-57 (March 26, 1954).

Problems and methods of dyeing combinations of cellulosic fibers or wool with synthetic fibers are discussed and suggestions given for a number of specific combinations.

Dyeing of wool and silk with Anthrasols

H. H. Fischer. *Z. ges. Textil-Ind. 56:* 104-105 (January 20, 1954); *in German.*

This is a study of the behavior of Anthrasol dyes on pure silk in the process of direct dyeing and acid or neutral baths. It also explains how especially vivid shades with a high fastness can be obtained on woolens which would not be possible with other dyestuffs.

Dyeing wool blends and other fibers for carpets

Harry F. Clapham (E. I. du Pont de Nemours and Co. Inc.). *Am. Dyestuff Reptr. 43:* P141-P142 (March 1, 1954).

Effect of dyeing on the sorption of water vapour by wool

P. Larose. *J. Soc. Dyers Colourists 70:* 77-82 (February, 1954).

The reduction in the sorptive capacity of wool for water vapor due to acid treatment or dyeing of the wool is discussed and previous results are reviewed. Preliminary experiments carried out with a view to showing a relation between the reduction in the amount of water sorbed and the amount of dye in the wool are reported. The results of these experiments point to an equivalence between the dye in the wool and the reduction in regain of the dyed wool as compared with undyed wool. 6 references.

Effects of heat-treatment of textile fabrics on their dyeing properties. Part 2

Kinnosuke Horie (Nagoya Inst. Technol.). *Bull. Nagoya Inst. Technol. 3:* 193-198 (1951); *2:* 197 (1950). Through *Chem. Abstracts 48:* 3032 (March 10, 1954).

Silk and wool were heated at 100-200° for 3-50 minutes, then were dyed with basic or acidic dyes. Degree of dye absorption was improved by heat-treatment, and acidic dyes were absorbed better than basic dyes.

Experiments on the chemistry of anthraquinone derivatives

W. Bradley. *J. Soc. Dyers Colourists 70:* 57-63 (February, 1954).

The results are summarized of work on the chemistry of the anthraquinone vat dyes which has been carried out during the past five years in the Department of Colour Chemistry and Dyeing of the University of Leeds. 25 references.

How the laboratory aids the dyer

H. Riding. *Dyer 111:* 337-340 (March 5, 1954).

Research on new and old dyes, quality control, investigation of defective dyeing, matching shades, etc.

Improving the dyeing properties of polyester fibres

J. A. Somers. *Brit. Rayon & Silk J. 30:* 56-57 (February, 1954).

Chemical treatments and their effects in improving the dyeability of Terylene are discussed, as well as the possibility of modifying the polymer itself.

Influence of different classes of dyes on the light fastness of nylon

C. Zuber, J. P. Niederhauser, J. Gobet and J. Chezaud. *Teintex 19:* 3-13 (January 15, 1954); *in French.*

Innovations in the field of the copper containing or copper treatable dyestuffs

E. Krahenbuhl. *Textil-Rundschau 9:* 19-23 (January, 1954); *in German.*

This article describes the advantages to the chemist from the use of the new copper agents for dyeing and printing.

Investigations into fastness to perspiration. Part 2

Soc. of Dyers and Colourists. Perspiration Fastness Subcommittee. *J. Soc. Dyers Colourists 70:* 63-68 (February, 1954).

This work shows that natural perspiration can have a profound effect on dyeings produced with copper-complex direct dyes or with direct dyes which have been aftertreated with copper-containing products and that this effect is due to removal of the copper. Histidine has been found to be the most reactive of the amino acids producing this result. The copper in such dyeings is largely responsible for their high light fastness and removal of copper leads to a depreciation of this fastness.

Naphthol dyeing

R. H. Nuttall (American Aniline Products, Inc.). *Am. Dyestuff Reptr. 43:* P178-P179 (March 15, 1954).

Procedures are given for the practical application of naphthols on cotton piece goods, yarn and raw stock. Some of the pitfalls are pointed out which may cause uneven dyeings or dyeings of poor crocking fastness. Various methods are compared for their practicability. The dyeing of Dacron with naphthols is also shown.

Natural dyewoods and their application

H. R. Tisdale (American Dyewood Co.). *Am. Dyestuff Reptr. 43:* 157-159,164 (March 15, 1954).

The bulk of the paper is devoted to a discussion of the application of the dyewoods to silk, wool, cotton, leather, nylon, acetate rayon, wood, hog bristles and furs, and their use in lakes and pigments and rustproofing.

Neutral premetalized dyestuffs

Charles Weidmann (Ciba Co. Inc.). *Am. Dyestuff Reptr. 43:* P167-P171 (March 15, 1954).

There are two types of premetalized dyestuffs, both of which contain metal (primarily chromium) in complex formation in the dye molecule involving primary and secondary valencies. Both these types are known for giving fast dyeings on wool, silk, and polyamide fibers. The older acid-dyeing type, exemplified by the Neolans, contains a sulfuric acid group and must be dyed with strong acid to get level results. The newer, neutral-dyeing types do not contain any acid group and are best applied from a nearly neutral bath. The author points out just how these two classes differ in chemical composition, dyeing behavior, ease of application, preservation of fiber, and uses. 5 references.

The pH of Cibalan dyebaths

Ciba Ltd. *Ciba Rev. No. 102:* 3685-3686 (February, 1954).

How to control Cibalan dyebath pH to obtain optimum conditions for wool dyeing.

Physical measurements of thickening agents and print pastes and their importance for practical operations

Karl Schmidt. *Melliand Textilber. 35:* 177-183 (February, 1954); *in German.*

Successful attempts have been made to disclose interrelationships between the printing behavior and the physical properties of thickening agents. The printing behavior covers such properties as the evenness of the prints and, most important of all, the sharpness of the outlines and the degree of penetration, while the physical properties include viscosity, surface tension, and furnishing properties.

Potting fastness of Cibalan dyes and their behaviour towards wet decatizing

R. Casty. *Ciba Rev. No. 102:* 3687-3688 (February, 1954).

Problems in dyeing Perlon

E. Heilmann. *Faserforsch. u. Textiltech. 12:* 493-499 (December, 1953); *in German.*

This article deals with the various dyeing theories, according to dyestuff classes and differences of color and fastness, with special reference to Perlon. A colored print compares the dyeing of Perlon and acetate rayon with Celliton dyes. The article also discusses the rate of saturation and the influence of pretreatments (fixation and washing) on the process of dyeing Perlon. A comparison of Perlon filament and Perlon staple fiber shows a different reaction towards dyeing. Special attention is paid to the twisting of the yarn and affinity for dyestuffs.

Recent research on vat dyes

J. Wegmann. *Teintex 19:* 83-99 (February 15, 1954); *in French.*

7 references.

Study in sample conformity of dyed materials, especially dyed materials of wool

R. Lassé. *SVF Fachorg. Textilver. 8, No. 10:*

427-438 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 26 (January 15, 1954).

Referring to papers previously published on this subject, the author makes suggestions on practical items such as the minimum size of samples, the most suitable sources of light for color matching, practical dyeing methods for experimental color matching, and testing methods of fastness to light and laundering, and for finishing agents used in the original samples. These methods are chiefly applied to wool materials, although it is pointed out that color matching of materials from synthetic fibers is even more difficult.

General D 4

Applications of carboxymethylcellulose in the textile industry

Otto Wurz and Erich Wurz. *Textil-Rundschau 8:* 557-560 (1953); *in German.* Through *Chem. Abstracts 48:* 3033 (March 10, 1954).

Sodium carboxymethylcellulose is used in sizing, finishing, and printing textiles. Formulations and specification are given.

The coating of chemical fibres

Karl Kubitzky. *Melliand Textilber. 35:* 66-68 (January, 1954); *in German.*

The coating of synthetic fibers such as Perlon and Orlon offers difficulties because of the lyophobic character of the fibers. The object of this paper is to point out a way to the achievement of coatings of good adhesion.

Effect of steaming on physico-chemical changes in viscose- and acetate-rayon products

C. J. Pinte, Mme Pierret, and P. Rochas. *Bull. Inst. Textile France No. 40:* 7-42 (June, 1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 57 (January 30, 1954).

Experiments carried out on rayons by using new steaming methods have revealed increased rate of regain, increased diffusion coefficient of dyes, and decreased rate of swelling in the treated products. Practical application of these results is discussed.

Faster finishing for ladies' hosiery

C. A. Pembroke. *Textile Age 18:* 50-55 (March, 1954).

The fastness to washing of resin finishes

M. Sorkin and W. Ernst. *Textil-Rundschau 9:* 23-24 (January, 1954); *in German.*

Neutral, alkaline and acid washing experiments gave proof that those resins which fix the fabric best are the hardest to wash off. Based on a described experimental set-up with acid wash a table showing the loosening of the resin is developed from which can be computed a per cent value of fastness to washing for different resin finishes.

Origin of defects and spots in dyeing, printing, and finishing

P. Colomb. *Teintex 19:* 15-25 (January 15, 1954); 99-115 (February 15, 1954); *in French.*

These articles form part of a series. Detection, avoidance, and correction of faults are discussed.

Shrinkage of cotton broadcloth shirts

M. A. Grimes and C. A. Werman (Texas A. & M. College, College Station, Texas). *Modern Textiles Mag. 35:* 48,71-73 (March, 1954).

Information on shrinkage of garments, when laundered by commonly used commercial and household methods, was obtained as a part of a study concerning the serviceability of cotton when used in men's white broadcloth shirts. Seven broadcloths of identical construction, each made of a different cotton, were used. After weaving, the broadcloths had all been sent to the same finishing company for finishing and sanforizing. During testing the broadcloths varied considerably in shrinkage, and all shrank much more than 1%. Data are given. 4 references.

Silicones in textile treatment

A. E. Williams. *Textile Merc. 130:* 466-471 (March 12, 1954).

Textile finishing developments

Textile Wkly. 52: 1980-1986 (December 25, 1953); *53:* 36,38 (January 1, 1954); 96-104 (January 8, 1954); 184-186 (January 15, 1954); 396-400 (February 5, 1954); 480-482 (February 12, 1954); 546-550 (February 19, 1954).

A review, which includes numerous references to the literature. Part 1, *Influence of the newer man-made fibres;* Part 2, *Bleaching and preparation for dyeing;* Part 3, *Dyeing and printing.* To be continued in later issues of *Textile Weekly.*

Water-repellent impregnations from aqueous and non-aqueous phases

J. Monheim. *Farber-Ztg. 6, No. 11:* 1-3 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 97 (February 15, 1954).

Advantages of re-proofing dry-cleaned rainwear and other clothing articles by using solvents, for example, benzene, carbon tetrachloride, or perchlorethylene, and the disadvantages involved in the use of water-proofing agents from aqueous

solutions (advisable in the case of washed articles) are reviewed.

Whitish patches on rayon fabrics and their origin

H. Reumuth. *Rayonne et Fibres Synthet. 9, No. 11:* 61-68 (1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 153 (February 27, 1954).

These faults, occurring in the very sensitive rayon fabrics subjected to wet treatment as a result of rubbing against the walls or wheels of dyeing machines, are discussed and micrographs are presented to show the abraded surface of the fibers.

TESTING AND MEASUREMENT E

Fibers E 1

The determination of lignin in partially delignified jute

W. G. Macmillan, A. B. Sen Gupta and A. Roy. *J. Textile Inst. 45:* T108-T112 (February, 1954).

The paper indicates that the lignin contents of partially delignified jute determined with 72 per cent sulfuric acid either at 2°C or at 22°C are almost the same as the calculated values obtained by applying the necessary correction factors described in *J. Textile Inst. 43:* T103 (1952). 4 references.

Determination of water retention of fibres and yarns

A. Zart. *Melliand Textilber. 34:* 849 (September, 1953); *in German.* Through *J. Soc. Dyers Colourists 70:* 39 (January, 1954).

Detailed directions for the method employing centrifugation.

Relation between Micronaire-fineness and Causticaire-maturity for various cotton samples

W. F. du Bois and D. F. van de Riet. *(Letter to the Editor). Textile Research J. 24:* 265-266 (March, 1954).

Various questions arising from use of the Causticaire method in the Technological Laboratory of Koninklijke Stoomweverij te Nijverdal N.V. and Stoomspinnerij te Nijverdal N.V., Nijverdal, Holland, are discussed.

The relaxation of stretched animal fibres. Part 1. An apparatus for the determination of relaxation curves

G. C. Wood and N. H. Chamberlain. *J. Textile Inst. 45:* T147-T161 (February, 1954).

An apparatus is described for measuring the relaxation of stretched fibers, i.e. the rate of the decay of tension which occurs after they have been rapidly stretched by a fixed amount. Its most important feature is the ability to give a continuous record of tension in the very early stages of relaxation, observation of which has not hitherto been made. 7 references.

Yarns E 2

Correlation of yarn strength with fiber strength measured at different gage lengths

H. M. Brown (Clemson Agricultural College, Clemson, S. C.). *Textile Research J. 24:* 251-260 (March, 1954).

The fiber strengths of 105 cottons measured with the Clemson Flat Bundle Tester at 0, 2, 4, 6, and 8 mm. gage length were correlated with the strength of yarns made from the same cottons. The correlation between single end yarn strength and flat bundle fiber strength was higher for all of the longer gage lengths than for so called zero gage length, being highest for 2 and 4 mm. For these gage lengths the coefficients of correlation ranged from 5% to 27% higher than for zero length for the several types and numbers of yarn. The correlations for the skein strength favored the longer gage lengths even more than in the single breaks, the coefficients ranging from 3% to 49% higher for 2 to 4 mm. gage lengths than for zero length. The results indicate that the increase in correlation with greater gage length, up to 4 mm., is higher the finer the yarns and also higher for combed yarns than for carded yarns. From the tests it seems that the "equivalent gripping distance" on individual fibers in yarn breaks must be approximately 3 mm. and that measuring the fiber strength at the short lengths used in the Pressley test will incorrectly rank certain cottons in relation to their merit in yarns. 11 references.

A method for the estimation of Fibrolane BX or viscose rayon in blends with wool

A. N. Davidson and R. Preston. *J. Textile Inst. 45:* T142-T146 (February, 1954).

A method is described for the estimation of Fibrolane BX or viscose rayon in blends with wool. The method is based on the preferential solubility of wool in a solution of barium hydroxide and potassium nitrate. 4 references.

New yarn uniformity tester

K. Breisinger. *Melliand Textilber. 35:* 160-161 (February, 1954); *in German.*

A new yarn uniformity tester is described, which operates entirely on mechanical principles, and is claimed to yield very precise results. Both the speed of feed and chart can be varied according to requirements. Specimen graphs obtained on the instrument are presented.

Subjective evaluation of Uster regularity diagrams

H. Langer. *Textil- u. Faserstofftech. 3, No. 10:* 457-462; *No. 11:* 495-498 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 108 (February 15, 1954).

The electronic Uster regularity tester for yarn, with or without an integrator, is described. The integrator-type tester records, at 20- and 30-second intervals the percentage irregularity and variation coefficient for the preceding sample and gives 12 and 18 values, respectively, within 6 minutes, which can be used for calculating the mean irregularity of a given sample. Comparison of the samples, arranged in the order of the values obtained, makes it possible not only to determine subjectively the quality of the yarn, but also to develop a rapid statistical method for the evaluation of irregularity coefficients.

General E 4

Apparatus for testing resistance to bending

G. Schroder. *Melliand Textilber. 34:* 418 (May, 1953); *in German.* Through *J. Soc. Dyers Colourists 70:* 39 (January, 1954).

This "Flexotest" consists of a vibrating spring, released at a constant amplitude by an electromagnet. It is designed for material of low stiffness, which is bent backwards and forwards over its full length by the swings of the spring. The time required to dampen the vibrations to a certain degree, indicated by means of an optical system, is measured. The resistance to bending is given in terms of the damping effect in seconds. A modified tester is being built. (German patent 880 955).

A comparison of the oxygen consumed from permanganate and B O D tests in the study of textile wastes

Amer. Assoc. Textile Chemists and Colourists. Rhode Island Section Subcommittee on Stream Pollution. *Am. Dyestuff Reptr. 43:* P130-P131 (March 1, 1954).

The purposes of this report are: (1) a brief study of the two principal methods of measuring the polluting effect on streams of wastes that cause oxygen depletion: oxygen consumed from permanganate, and biochemical oxygen demand (BOD); (2) a comparison of the relative degree of stream pollution by domestic and textile wastes as determined by these two methods. 7 references.

Concerning the preparation of microbiologically resistant wool by chemical modification. Paper-chromatographic examination

Helmut Zahn. *Melliand Textilber. 35:* 162-167 (February, 1954); *in German.*

The author gives detailed directions for a paper-chromatographic examination of wool hydrolysates for their amino acid composition. The chemically modified wool yarns described in a former paper have been subjected to an exhaustive examination by these methods.

Detection and measurement of modification in wool

M. Robinet. *Bull. Inst. Textile France No. 39:* 49-60 (May, 1953); *in French.* Through *J. Soc. Dyers Colourists 70:* 39 (January, 1954).

Samples of wool treated under various alkaline conditions were examined in several laboratories by means of standardized testing methods and the results critically compared.

Detection of oxy- and hydrocelluloses in rayon, rayon staple and cotton

H. Schumacher. *SVF Fachorgan Textilveredlung. 8, No. 10:* 458-463; *No. 11:* 505-509 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 107 (February 15, 1954).

Molecular changes caused by oxidation and hydrolysis, respectively, of cellulose are discussed, and several simple, sensitive and reliable reactions for the detection of the modified celluloses are fully described. By combining the reactions (e.g. phenylhydrazine-p-sulfonic acid with ethylene diamine), mixtures of oxy/hydrocelluloses can be detected.

A method for handling errors in testing and measuring

A. R. Eagle. *Ind. Quality Control 10:* 10-15 (March, 1954).

Allowances for test errors take the form of test specifications set inside the desired performance specifications by an amount sufficient to insure that no non-conforming units will be accepted as the result of test errors. The article discusses the factors that should be considered in the setting of these test specifications, and in-

cludes a numerical example. Many diagrams illustrate the statistical and technical concepts and relationships involved.

Mill laboratory control of fiber oiling

A. Parisot. *Bull. Inst. Textile France No. 43:* 7-32 (December, 1953); *in French.*

A critical study of the laboratory methods which can be used for: (1) acceptance inspection of oiling products; (2) the prevention of defects which may be caused by the said products (methods applicable either to the products alone or to the body of fiber produced); (3) inspection of processing operations in the factory. 20 references.

Modern laboratories in textile mills

A. Greyborn. *Can. Textile J. 71:* 67-69 (March 26, 1954).

A general discussion of the function of mill laboratories and their worth to a textile mill.

New recording method of fibre diagrams

C. Legrand. *C.r. Acad. Sci., Paris. 237:* 573-575 (1953); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 105 (February 15, 1954).

The reception of X-rays, diffracted on to a film placed co-axial to the primary radiation, makes it possible to obtain photographs which can be used as microphotometric diagrams. The diagrams obtained are particularly useful for Bragg angles between 10° and 45°; they can be applied for studying the structure of native or mercerized cellulose.

Product evaluation by scientific methods

Dean Foster (United States Testing Co., Inc., Hoboken, N. J.). *Can. Textile J. 71:* 59-63 (March 12, 1954).

Evaluating consumer product acceptance through measuring psychological qualities by means of psychological and psycho-physical methods under controlled laboratory conditions.

INDUSTRIAL ENGINEERING F

Machinery and Maintenance F 1

Teflon

Robert Goldsmith (General Plastics Inc.). *Textile Forum 11:* 22-23,33 (February, 1954).

Teflon, polytetrafluoroethylene, can be used as a coating in the textile industry on slasher cylinders, dry cans and rolls, etc. Teflon is practically inert chemically, there is no known solvent for it, and it defies adhesion. Information is given on how to apply Teflon coatings to machinery.

Textile preparatory machinery needing variable speed drives

J. L. Delany. *Bobbin and Beaker 12:* 10,18-19,22 (Spring, 1954).

Variable speed drives for pickers, cards, drawing, roving, spinning and slashing are discussed.

Quality and Waste F 3

Quality control through statistical methods. Part 6. Additional control chart applications

N. L. Enrick. *Modern Textiles Mag. 35:* 44, 75-77 (March, 1954).

In this sixth installment, the author presents charts for control of knitting seconds, warper breaks, nylon hosiery yarn, combing, processing waste, and yarn uniformity as taken from actual application in cotton, woolen and worsted, and synthetic yarn mills. Methods are furnished for applying these techniques to other similar control problems in a mill. The statistical background of the simplified formulas furnished for this purpose is briefly discussed, together with limitations of application and "when not to use control charts." A final section deals with linear uniformity charts, such as obtained on the Uster, Pacific or ITT-Brush instruments. Several charts, as obtained on the ITT-Brush Uniformity Analyzer, are

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shown and a statistical explanation is furnished in graphic form. Here again, practical applications are discussed in terms of various fibers, such as cotton, cut staple, filament and woolen and worsted yarns. A means of comparing various yarns, rovings and slivers on a relative scale of "degree of perfection," is furnished.

Statistical control of quality in textile processing

N. L. Enrick. Charlottesville, Va., Institute of Textile Technology, 1954. 18p. ITT report no. 5. Copies are available on request.

A survey of the most important statistical tools, control charts and analysis of variations, as applied to the various processing departments in a mill. A summary table lists typical applications in each of the major systems of processing: cotton, woolen, worsted, and filament.

General F 4

Can human engineers help the textile industry?

Charles R. Kelley and Otto Kahn. *Textile Forum 11:* 15-16, 36, 40-43 (February, 1954).

Biomechanics, engineering psychology or human engineering, as it is often called, is a technical specialty dealing with human characteristics relating to the design and operation of machines and equipment. In the textile industry, difficult problems of man-machine relationships occur in several stages of the transition from fiber to cloth. This article considers a number of specific textile operations in which the human engineering specialist may be able to make significant contributions.

SCIENCES G

Chemistry G 1

The Allworden reaction: various factors affecting reaction time

M. Leveau and N. Cebe. *Bull. Inst. Textile France No. 43:* 33-41 (December, 1953); *in French.*

In this article the various factors affecting the time in which Allworden's bubbles appear are investigated. The halogen concentration has considerable influence. The action of various prior treatments of the fibers is studied quantitatively. As long as the medium remains acidic, the influence of the pH is unimportant. Various mineral salts can accelerate or delay the reaction.

Carpet soiling

K. L. Whitney and J. W. Schappel (American Viscose Corp.). *Am. Dyestuff Reptr. 43:* P143-P147 (March 1, 1954).

Several important soiling criteria which are peculiar to carpet soiling are discussed. Oily contamination of carpet fibers, whether through producer finishes, processing additives, machinery lubricants or backing-yarn oil lubricants, promote carpet soiling. The control of these contaminants is suggested and demonstrated. 6 references.

Emulsion polymers for the textile industry

Leonard Shapiro. *Am. Dyestuff Reptr. 43:* P132-P140 (March 1, 1954).

A review of the fundamental principles of emulsion polymerization, tracing the effect of the many variables, including copolymer composition, emulsifying system, particle size, effect of these factors on molecular weight, chemical stability, mechanical stability, gloss, washability, etc. Review of applications ranging from emulsifying agents, and warp sizings to finishing agents, pigment binders and nonwoven fabrics. 10 references.

The theory of soil-fiber complex formation and stability

J. Compton and W. J. Hart *(Letter to the Editor). Textile Research J. 24:* 263-264 (March, 1954).

An integrated statement of the theories which have resulted from the work of Compton and Hart during the past four years.

Physics G 2

The discharge of electrified textiles

J. A. Medley. *J. Textile Inst. 45:* T123-T141 (February, 1954).

Discharge processes which may conveniently be utilized for the dissipation of static are analyzed quantitatively and shown to be of three main types: (1) conduction within the textile itself, which is responsible for the well-known humidity effect; (2) conduction by surface impurities, a different mechanism which accounts for the action of antistatic agents; (3) gaseous discharge, this determines maximum charge densities in accordance with geometrical considerations. 18 references.

Exact pattern of a concentration-dependent diffusion in a semi-infinite medium. Part 3

H. Fujita (Kyoto University, Japan). *Textile Research J. 24:* 234-240 (March, 1954). 9 references.

Luster of cotton: improvement. Part 6. Yarn structure in relation to luster

Lyman Fourt, R. M. Howorth, M. B. Rutherford, and Pauline Streicher (Harris Research

Laboratories, Wash., D. C.). *Textile Research J. 24:* 163-172 (February, 1954).

The basic features of staple yarn structure which can vary in cotton yarns include fiber factors such as fiber fineness, maturity, and staple length; mechanical processing factors, such as rate of carding, combing, and singeing, which affect fiber arrangement; and whole-yarn factors, such as twist, plying, and yarn fineness, which affect luster. These are discussed in three sections. The results show that the three main means of improving luster by yarn structure factors are: (1) lowering of twist; (2) use of optimum plying twist; (3) singeing to remove free surface fibers. Two additional structure factors, which will not usually produce as great an effect on luster at the same cost, are: (4) using finer yarns; (5) combing. 9 references. *(See also Col. 41)*

Relationship between luster, whiteness degree, and surface characteristics of textiles

Otto De Riz. *Faserforsch. u. Textiltech. 4, No. 11:* 472-476 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 152 (February 27, 1954).

The terms *luster* and *whiteness* are defined and experimental determination of the correlation . luster and whiteness, and luster and properties of textiles, respectively, is described.

Static electricity in textiles

J. W. Ballou (E. I. du Pont de Nemours & Co., Inc.). *Textile Research J. 24:* 146-155 (February, 1954).

This discussion is concerned primarily with the physical effects of static electricity that are objectionable from the standpoint of the wearer of textile fabrics. Two du Pont instruments for measurement are described, the "modulator" for fabrics and a static electricity tester for yarns. The electrostatic series is discussed in detail. Experiments with reducing static through staple blending based on the electrostatic series are described but it is concluded that the method is limited because optimum conditions vary with the specific rubbing surface. There are several mechanisms by which charge density in textiles can be altered: the charges can be conducted to ground, they can diffuse over a surface and redistribute themselves, they can be neutralized by other charges, and, lastly, they can be lost by electrical discharge.

Biology G 3

Non-woollen textiles and moths

S. Wolf. *Faserforsch. u. Textiltech. 4:* 417-439 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 59 (January 30, 1954).

Literature on the biology and nutrition of various moth species is reviewed and feeding tests with non-woolen textiles, namely, viscose, alginate, polyvinyl, polyamide, chemoprotein, and glass materials, are discussed. It is concluded that all the fibers are more or less susceptible to attack by moths. 75 references.

Resistance to microbiological deterioration of resin-treated cellulosic fabrics

T. F. Cooke (American Cyanamid Co.). *Textile Research J. 24:* 197-209 (March, 1954).

It has been found that textile resins of the water soluble, aminoplast type will prevent the microbiological deterioration of cellulosic fabrics. In order to have a better understanding of this subject, the following points are discussed: (1) the physical and chemical structure of cellulosic fibers, (2) the types of micro-organisms that attack cellulose, (3) the fungicides and bactericides normally used to prevent microbiological deterioration of cellulose, and (4) some chemical reactions with cellulose that alter its resistance to microbial decomposition. Then the effect of textile resins on (1) the properties of cellulosic fabrics and (2) the microbiological deterioration of fabrics, is discussed. 50 references.

Stability to water leaching of some textile fungicides applied to unlined flax forestry fire hose

G. R. F. Rose and C. H. Bayley (National Research Laboratories, Ottawa, Canada). *Textile Research J. 24:* 229-234 (March, 1954).

Unlined flax fire hose was treated with various fungicides and the effect of leaching and soil burial on loss of breaking strength was noted. Data for loss of treating compound are also given. Copper compounds offered the greatest protection and copper 8-hydroxyquinolinolate was preferred. 3 references.

MISCELLANY H

Cotton Research Clinic

Textile Bull. 80: 126-138 (March, 1954).

Summaries are given of the papers presented at the fifth annual Cotton Research Clinic in February, 1954.

Textile research achievements in 1953

J. B. Goldberg. *Papers Am. Assoc. Textile Technol. 9:* 66-73 (March, 1954).

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

NATURAL FIBERS

Treating wool to render it nonfelting

J. H. McLauchlan (to Kroy Unshrinkable Wools Ltd., Canada). USP 2 671 006, March 2, 1954.

MAN-MADE FIBERS

Apparatus for cutting and forming bundles of continuous filaments into continuous slivers

D. A. Girvan. BP 691 963, May 27, 1953.

Method of and device for cutting filaments, threads, slivers and the like textile materials

Farbenfabriken Bayer (Switzerland). BP 692 369, June 3, 1953.

OPENING AND PICKING

Doffing mechanism for lap-forming machines

Z. Szaloki, W. J. Senior and A. Knowles (to T. M. M. (Research) Ltd., England). USP 2 669 756, February 23, 1954.

CARDING AND COMBING

Hopper feed mechanism for carding engines and other textile machines

Allen Priest. BP 691 624, May 20, 1953.

Stripping roller for main cylinder of carding machines

H. Duesberg (Belgium). BP 692 898, June 17, 1953.

Vacuum apparatus for stripping card surfaces of carding engines

A. H. Milnes (to Cook & Co., Manchester, Ltd.). BP 691 186, May 6, 1953.

DRAWING AND ROVING

Device for condensing slivers or rovings in spinning or like machines

E. Cottam and R. B. Cottam. BP 691 273, May 6, 1953.

High-speed twisting and drawing head

F. Hadwich (Germany). BP 691 404, May 13, 1953.

Roller-type high-drafting apparatus

W. H. Watson (to T. M. M. (Research) Ltd.). BP 692 028, May 27, 1953.

Saddle weighting system for the feed rollers of a drafting head

W. Stahlecker (to Vereinigte Kugellagerfabriken Akt. Ges.). BP 691 615, May 20, 1953.

Top roll weighting device for drawing rollers

W. Stahlecker (to Wuerttemberg Spindelfabrik G.m.b.H., Germany). BP 692 864, June 17, 1953.

Weighting saddle for the top rolls in a drafting mechanism using aprons

Zellwolle-Lehrspinnerei G.m.b.H. (Germany). BP 687 503, February 18, 1953.

SPINNING

Bobbin handling mechanism

W. L. Perry and J. E. Ring (to Abbott Machine Co., Inc.). USP 2 670 150, February 23, 1954.

Coupling of aligned rollers of spinning and like frames

H. Holt (to H. Lees & Sons Ltd.). BP 691 642, May 20, 1953.

Improved means for mounting a self-lubricating ring on textile spinning, twisting and doubling machines

T.M.M. (Research) Ltd., Helmshore and Howard and Bullough Ltd., Accrington, Lancs. BP 687 516, February 18, 1953.

Improvements in doffing mechanisms for textile ring spinning, doubling and twisting machines

T.M.M. (Research) Ltd. and Howard and Bullough Ltd., Accrington, Lancs. BP 687 585, February 18, 1953.

Improvements in spinning mechanisms in particular to those driven by means of a worm and a worm wheel

Hispano Suiza (Suisse), S.A., Geneva, Switzerland. BP 687 688, February 18, 1953.

Up-twisting spindle assembly

J. K. Hartley and V. F. West (to Courtaulds Ltd.). BP 691 700, May 20, 1953.

WINDING

Automatic yarn winding machine

J. R. Grady and H. L. Muschamp. USP 2 670 151, February 23, 1954.

Bobbin winding machine

G. C. Joyce (to Whitin Machine Works). USP 2 670 147, February 23, 1954.

Cake expander

L. A. Little and T. L. Williams (to North American Rayon Corp.). USP 2 668 678, February 9, 1954.

A device for supporting hollow cakes of synthetic yarn (after processing) while unwinding.

Cross-winding machines

Walter Reiners (Germany). BP 691 328, May 13, 1953.

Multiple-unit bobbin winding machine

W. L. Perry (to Abbott Machine Co., Inc.). USP 2 670 149, February 23, 1954.

Quick-traverse mechanism for winding machines

G. C. Joyce (to Whitin Machine Works). USP 2 670 148, February 23, 1954.

Textile apparatus for unwinding yarn from yarn packages

F. F. Sutherland (to Celanese Corp. of America). USP 2 670 154, February 23, 1954.

Winding machine

N. E. Klein (to Deering Milliken Research Trust). USP 2 668 671, February 9, 1954.

Winding machine

N. E. Klein (to Deering Milliken Research Trust). USP 2 668 672, February 9, 1954.

Winding means for textile threads and support therefor

T. Grauer (to Feldmuhle A. G., Switzerland). USP 2 670 905, March 2, 1954.

Yarn package winding machine

E. J. Heizer (to Specialties Development Corp.). USP 2 670 146, February 23, 1954.

YARNS (General)

Braking devices for rotatable bobbins

F. Hopkinson and I. Gledhill. BP 690 618, April 22, 1953.

Method of making yarns

Anton F. Burkardt (to Sativa Corporation). USP 2 656 671, October 27, 1953.

A composite yarn of treated bast fibers is produced whose wet and dry strengths are closely equal.

Thread tensioning device

Onderzoekingsinstituut Research (Netherlands). BP 690 057, April 8, 1953.

WEAVING

Air jet device for weaving of fabrics

V. Svaty (Czechoslovakia). USP 2 668 560, February 9, 1954.

Automatic pick and pick motion in weaving looms

R. Foisy and J. A. Vezina. USP 2 669 260, February 16, 1954.

Bobbin stripper

C. Turley. USP 2 670 521, March 2, 1954.

Center brace for loom warp stop motion

L. J. Palombo. USP 2 668 563, February 9, 1954.

Doff safety bracket for looms
A. L. Thibault. USP 2 668 561, February 9, 1954.

Friction letoff for looms
L. P. Randall and M. W. Snipes. USP 2 670 764, March 2, 1954.

Improvements in actuating mechanism in weaving looms
Crawley Industrial Products Ltd., Crawley, Sussex. BP 687 509, February 18, 1953.

Loom harness heddle frame
B. T. Leveque (to Emmons Loom Harness Co.). USP 2 668 559, February 9, 1954.

Loom picker
J. V. Looper. USP 2 670 765, March 2, 1954.

Loom shuttle
K. Massey and R. V. Patchett (to British Celanese Ltd.). USP 2 669 259, February 16, 1954.

Loom stop motion
J. Lachapelle (to Drummondville Cotton Co. Ltd.). USP 2 668 562, February 9, 1954.

Photoelectric stop mechanism for looms
R. B. Hutchinson (to Alexander Smith, Inc.). USP 2 670 014, February 23, 1954.

Pile wire for wire looms and method of weaving pile fabrics
F. P. Groat (to the Magee Carpet Co.). USP 2 670 013, February 23, 1954.

Weaving ribbons, tapes, bands and the like
B. P. Voumard and W. H. Nicolet (Switzerland). USP 2 670 012, February 23, 1954.

Carpets and the method of making them on a wire tapestry loom
R. Davies and H. C. Bolton (to Carpet Trades Ltd.). BP 691 689, May 20, 1953.

Electromagnetic weft bobbin changing mechanism for looms
E. E. Claasen (Germany). BP 691 085, May 6, 1953.

Gripper shuttle power looms
Sulzer Frères Soc. Anon. (Switzerland). BP 691 428, May 13, 1953.

Healds or heddles for looms for weaving
W. H. Butler. BP 690 582, April 22, 1953.

Jacquards for weaving looms
Société des Mecaniques Verdol (France). BP 691 883, May 20, 1953.

Looms for weaving tufted pile fabrics
I. B. Bassindale (to Platt Brothers & Co. Ltd.). BP 691 050, May 6, 1953.

Looms having bobbin replenishing means
R. Hrdina (Czechoslovakia). BP 691 672, May 20, 1953.

Optical apparatus for detecting the occurrence of broken threads, filaments or the like
L. G. Ward (to General Electric Co. Ltd.). BP 691 069, May 6, 1953.

Picking mechanism for underpick looms
J. J. Vincent and F. Davies (to British Cotton Industry Research Association). BP 690 620, April 22, 1953.

Weaving loom for pile fabrics
I. S. Porter (to Wilson and Longbottom Ltd.). BP 691 609, May 20, 1953.

Weft detector arrangements for looms
F. Handler. BP 691 022, May 6, 1953.

Weft replenishing mechanism of automatic weaving looms
T. S. Garstang (to Automatic Looms and Accessories Ltd.). BP 691 747, May 20, 1953.

KNITTING

Apparatus for measuring yarn tension during knitting
S. Jefferson (to National Research Development Corporation). BP 691 123, May 6, 1953.

Flaw detector for circular knitting machines
J. W. Phillips and J. A. Roush (to Cooper's Inc.). USP 2 669 107, February 16, 1954.

Knitting machine
A. Belford (to Scott and Williams, Inc.). USP 2 669 104, February 16, 1954.

Knitting machine stop mechanism
D. Pernick. USP 2 669 106, February 16, 1954.

Sewing the loops at the toe of circular knit hose: method and apparatus
J. L. Getaz. USP 2 669 952, February 23, 1954.

Stop motion for knitting machines

J. Wachsman and D. Wachsman. USP 2 669 105, February 16, 1954.

Straight bar knitting machine

K. W. Wickardt (to Hosemaster Machine Co. Ltd., England). USP 2 669 854, February 23, 1954.

Warp stripe attachment for circular knitting machines

M. R. Bryant (to Elliott Knitting Mills, Inc.). USP 2 670 617, March 2, 1954.

Yarn carrier and tube for knitting machines

F. Scarborough. USP 2 669 103, February 16, 1954.

Yarn-controlled stopping device for knitting machines

B. Lebocey (France). USP 2 669 855, February 23, 1954.

Yarn feed mechanism for knitting machines

M. Zimic and A. Miskovsky. USP 2 670 619, March 2, 1954.

FABRICS (General)

Cloth cutter for cloth spreading machines and having reciprocable cutter disks

R. E. Sayles. USP 2 670 040, February 23, 1954.

Crepe fabric

R. L. Beard (to Eastman Kodak Co.). USP 2 669 766, February 23, 1954.

Fibrous webs: process for production

J. Allan and E. B. Thomas (to British Celanese Ltd., England). USP 2 670 316, February 23, 1954.

Nonwoven fabric: method of making

D. K. Rider (to Chicopee Manufacturing Corp.). USP 2 670 315, February 23, 1954.

Rewinding machine for winding a web into rolls

L. Priest (to McLaurin-Jones Co.). USP 2 670 152, February 23, 1954.

FINISHES (Wet processes)

Deacetylated chitin shrinkproofing of wool and product

J. B. Rust (to Montclair Research Corp.). USP 2 669 529, February 16, 1954.

Fabrics from cellulose fibers without spinning or weaving

E. Eisenhut. BP 698 123, October 7, 1953.

Firm, washable materials resembling woven cloth are produced without spinning and weaving by bringing a fleece consisting wholly or mainly of regenerated cellulose fiber into contact with an alkali solution containing 5-15% of NaOH at −5 to +25°C. for a few seconds to 1 minute, neutralizing, rinsing, and drying. By conveying the fleece between fine mesh nets and imparting a slight gripping pressure towards the end of the process a durable and distinctive finish is imparted.

Filamentous textile having a processing finish of scourable textile lubricant

G. D. Jefferson and R. D. Fine III (to Atlas Powder Co.). USP 2 668 785, February 9, 1954.

Fire retardent solution: method for production

R. Dahlstrom and G. E. Bronson (to National Lead Co.). USP 2 670 297, February 23, 1954.

Heat-treatment of N-alkyl polyamides

O. A. Bredeson (to E. I. du Pont de Nemours and Co.). USP 2 670 267, February 23, 1954.

Method for rendering cellulosic materials fire resistant

I. M. Panik and W. F. Sullivan (to National Lead Co.). USP 2 668 780, February 9, 1954.

Method of and apparatus for coating fabric on either or both faces

H. C. Bostwick (to Akron Standard Mold Co.). USP 2 668 572, February 9, 1954.

Process for fixing water-soluble organic compounds on materials of fibrous structure

J. Heyna and W. Schumacher (to Farbwerke Hoechst Aktiengesellschaft, Germany). USP 2 670 265, February 23, 1954.

Process for flameproofing textile materials

W. L. Dills (to E. I. du Pont de Nemours and Co.). USP 2 668 784, February 9, 1954.

Textile bleach-finish process

G. Sigler (to E. I. du Pont de Nemours and Co.). USP 2 670 266, February 23, 1954.

Water-repelling composition

N. G. Mailander (to S. C. Johnson and Son, Inc.). USP 2 669 524, February 16, 1954.

Water-repelling composition

N. G. Mailander (to S. C. Johnson and Son, Inc.). USP 2 670 303, February 23, 1954.

Wrinkle finish coating composition containing a vinyl chloride-vinyl acetate-vinyl alcohol terpolymer and an alkyd resin

W. A. Waldie (to New Wrinkle, Inc.). USP 2 671 062, March 2, 1954.

DYEING AND PRINTING

Dyeing cellulose esters

R. W. Nebel (to E. I. du Pont de Nemours and Co.). USP 2 670 264, February 23, 1954.

Dyeing polyethylene terephthalate fibers: composition and process

H. Luttringhaus and A. A. Arcus (to General Dyestuff Corp.). USP 2 670 263, February 23, 1954.

Method for dyeing and presetting cellulose acetate tricot fabrics

L. L. Walmsley (to American Viscose Corp.). USP 2 669 502, February 16, 1954.

Process and apparatus for dyeing or performing related processes upon textile material using molten metal bath

R. S. E. Hannay and W. Kilby (to Standfast Dyers and Printers Ltd.). USP 2 668 747, February 9, 1954.

FINISHES (Dry processes)

Drying hosiery: machine

H. S. Drum, H. F. Liedtke and J. Schmitz, Jr. (to Smith, Drum and Co.). USP 2 669 788, February 23, 1954.

Method and apparatus for treating yarns

W. R. Keen (to Collins and Aikman Corp.). USP 2 669 001, February 16, 1954.

Process for deforming and setting a twisted nylon ply yarn at intervals along its length.

Process for setting wool fabrics

J. N. Dalton and W. B. Kaupin (to Pacific Mills). USP 2 669 002, February 16, 1954.

FINISHES (General)

Positive and constant-tension web letoff mechanism for textile machines

George E. Clentimack (to Whitin Machine Works). USP 2 654 236, October 6, 1953.

Protective device

Wilmer C. Anderson (to Deering Milliken Research Trust). USP 2 661 551, December 8, 1953.

This device is electrically actuated to stop fabric movement and retract the steam jacket upon detection of a metal object in a fabric to be pressed.

BOOKS, PAPERS, AND PAMPHLETS

Added to the library during the past month

Bearings

ANALYSIS AND LUBRICATION OF BEARINGS. M. C. Shaw. N. Y., McGraw-Hill, 1949. 618 p.

Chemistry

ADVANCES IN PROTEIN CHEMISTRY. v. 8. N. Y., Academic Press, 1953. 529 p.

CHROMATOGRAPHY—its use in the quantitative analysis of detergent and soap ingredients; an abstract bibliography. F. H. Cozzi, Phila., Quartermaster Research and Development Laboratories, 1953. 24 p.

PRINCIPLES OF POLYMER CHEMISTRY. P. J. Flory. Ithaca, N. Y., Cornell Univ. Press, 1953. 672 p.

SYNTHETIC METHODS OF ORGANIC CHEMISTRY. v. 7, 1953. W. Theilheimer. N. Y., Interscience, 1953. 450 p.

Combing

PRACTICAL WORSTED COMBING. T. F. Griffin. London, National Trade Press, 1953. 169 p.

Fabrics

AIR PERMEABILITY OF PARACHUTE CLOTHS. M. J. Goglia. Wright Air Base, Ohio, Wright Air Development Center, November, 1952. 126 p.

AN EVALUATION OF ARMY SUMMER UNIFORM FABRICS. S. J. Kennedy. Phila., Quartermaster Research and Development Div., 1953. 50 p. *Textile series report no. 71.*

A STUDY OF SOME FACTORS AFFECTING THE TEAR AND WATER RESISTANCE OF LIGHTWEIGHT CLOTHING AND TENTAGE FABRICS. W. E. O'Brien. Phila., Quartermaster Research and Development Div., 1953. 21 p. *Textile series report no. 81.*

Fibers

CHANGES IN TWO FIBER PROPERTIES OF COTTON OVER A TEN YEAR PERIOD; VARIETIES GROWN DURING 1939 TO 1941 COMPARED WITH THOSE GROWN FROM 1949 TO 1951. J. E. Hite. Beltsville, Md., U. S. Bur. of Plant Industry, March, 1953. 11 p.

MECHANICAL PROPERTIES OF DECRYSTALLIZED COTTON. George Susich. Phila., Quartermaster Research and Development Div., 1953. 18 p. *Textile series report no. 79.*

KNOW YOUR WOOLFACTS, 1953-1954. A guide to educational and information aids on wool and wool products for educators and students. Wool Bureau. N. Y., 1953. 25 p.

THE TENSILE BEHAVIOR OF SOME PROTEIN FIBERS. George Susich. Phila., Quartermaster Research and Development Div., 1953. 37 p. *Textile series report no. 80.*

Knitting

FULLY-FASHIONED HOSE MANUFACTURE. S. B. Bradley. Manchester, England, Harlequin Press, 1953. 172 p.

Motion Study

THEORY AND APPLICATION OF MOTION STUDY. A. G. Shaw. Manchester, England, Harlequin Press, 1953. 37 p.

Printing

SILK SCREEN PRINTING; techniques and application. H. A. Thom. Wash., U. S. Office of Technical Services, September, 1952. 5 p.

Research

THE ORGANIZATION OF INDUSTRIAL SCIENTIFIC RESEARCH. 2d ed. C. E. K. Mees. N. Y., McGraw-Hill, 1950. 383 p.

Testing and Identification

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